

SUPPORT FOR THE AMENDMENTS

Claim 1 is cancelled and rewritten as Claim 25. Further support for Claim 25 is found on page 10, lines 24-31, in the specification.

Claims 2-9, 23 and 24 are amended to recite proper antecedent basis to Claim 25 and to use wording and structure consistent with U.S. patent law practice.

Support for the amendment of Claim 3 is found on page 7, lines 23-25, in the specification.

Claim 10 is canceled and rewritten as Claim 26. Further support for Claim 26 is found beginning on page 10, line 24, and bridging to page 12, line 11.

Claims 12-22 are amended to recite proper antecedent basis to Claim 26 and to use wording and structure consistent with U.S. patent law practice.

No new matter is believed added to this application by entry of this amendment.

Upon entry of this amendment, Claims 2-9 and 12-26 are active.

REMARKS/ARGUMENTS

Applicants respectfully note that priority of the claimed invention to the filing date of October 14, 2003, of DE 10347567.2 is perfected by the submission herewith of a certified English language translation of the priority document and a statement of accuracy.

The claimed invention is directed to an electrical separator for a lithium battery. A separator composed of nonelectroconductive materials which has both good thermal stability and shutdown performance while being stable during processing in the manufacture of lithium batteries is sought.

The claimed invention addresses this problem by providing an electrical separator as described in Claim 25 and claims dependent thereon and a method for producing the

electrical separator as described in Claim 26 and claims dependent thereon. No such electrical separator for a lithium battery is disclosed or suggested in the cited references.

Applicants wish to thank Examiner Best and Supervisory Examiner Yuan for the courteous and useful discussion of the above-identified application with Applicants' U.S. representative on June 26, 2008. At that time, Applicants' U.S. representative reviewed and contrasted the technology of the cited references with the claimed invention. The following reiterates and expands upon that discussion.

The rejection of Claims 1-5, 7-10 and 12-24 under 35 U.S.C. 102(a) over Hennige et al. (DE 10238945, equivalent to U.S. 2005/0221165)(Hennige '945) is respectfully traversed.

Applicants respectfully note that the inventors of the cited reference are the inventors of the claimed invention. Therefore, as the cited reference is not "by another," as required under 35 U.S.C. 102(a), this reference cannot be a basis for rejection of the claimed invention.

Moreover, Applicants respectfully note that this reference is described in the specification as follows:

"Commonly assigned DE 102 389 45 has very recently been the first to describe separators which comprise a ceramic layer, which prevents complete meltdown of the separator, and a shutdown layer of particles having a defined melting point, this shutdown layer ensuring secure cell shutdown in the event of battery dysfunction. The problem with the shutdown layer described therein is the insufficient particle ruboff resistance, which may cause shutdown layer injury in the course of separator processing."

Hennige '945 describes a shutdown layer which consists of particles which melt at a desired temperature ([0013] and Claim 1).

In contrast, the claimed invention as described in Claim 25 includes **a sheet of materials selected such that the shutdown layer will melt at a temperature determined as**

the shutdown temperature of the electrical separator. Nowhere does Hennige '945 disclose or suggest a sheet of materials as a shutdown layer as according to the claimed invention.

In view of the foregoing, Applicants respectfully submit that the Hennige '945 does not qualify as a 35 U.S.C 102(a) reference. Moreover, this reference neither discloses nor renders obvious the claimed invention. Accordingly, Applicants respectfully request withdrawal of the rejection of Claims 1-5, 7-10 and 12-24 under 35 U.S.C. 102(a) over Hennige et al.

The rejection of Claims 10, 13 and 16-22 under 35 U.S.C. 102(e) over Shi et al. (U.S. 2005/0014063) is respectfully traversed.

Shi does not disclose or suggest an electrical separator for a lithium battery as described in the claimed invention.

Shi describes a battery separator having a nonwoven flat sheet, a microporous membrane having low temperature shutdown properties and an adhesive bonding the nonwoven flat sheet to the microporous membrane which is adapted for swelling when contacted by an electrolyte. (Claim 1) The nonwoven and/or its fibers may be coated or surface treated with ceramic material [0014]. Shi provides no description of the nature of or a method to prepare the ceramic coating.

In contrast, the claimed invention describes a porous inorganic nonelectroconductive coating on a surface and in the pores of the porous carrier. The porous inorganic nonelectroconductive coating comprises particles of at least one selected from the group consisting of an oxide of Al, an oxide of Si and an oxide of Zr, and the particles have an average particle size in the range from 0.5 to 10 μm . In the porous inorganic nonelectroconductive coating the particles are adhered together by an oxide of Al, Si or Zr.

The specification beginning at line 24, page 10, and continuing to page 12, line 11, describes the nature of and the method to produce the ceramic coating according to the claimed invention.

Applicants respectfully submit that nowhere does Shi disclose or suggest a porous inorganic nonelectroconductive ceramic coating as according to the claimed invention.

Applicants respectfully submit that a proper finding of anticipation requires that “[e]very element of the claimed invention … be literally present, arranged as in the claim. *Perkin-Elmer Corp.*, 732 F.2d at 894, 221 USPQ at 673; *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771-72, 218 USPQ 781, 789 (Fed. Cir. 1983), cert. denied, 465 U.S. 1026 [224 USPQ 520] (1984). The identical invention must be described in as complete detail in the reference as is described in the claimed invention.

Applicants respectfully note that Claim 10 is herein canceled and rewritten as Claim 26. Claim 26 depends from Claim 25 and the Examiner has acknowledged that Shi fails to teach “said porous inorganic nonelectroconductive coating has a particle size of 0.5 to 10 μm .”

In view of the above, Applicants respectfully submit that Shi can neither anticipate nor render obvious the claimed invention. Accordingly withdrawal of the rejection of Claims 10, 13 and 16-22 under 35 U.S.C. 102(e) over Shi et al. is respectfully requested.

The rejection of Claims 1-9, 12, 14-15 and 23-24 under 35 U.S.C. 103(a) over Shi in view of Hyung et al. (U.S. 6,620,320) is respectfully traversed.

The deficiencies of Shi have been described. Hyung cannot cure these deficiencies and therefore the cited combination of references does not disclose or suggest the claimed invention.

Hyung describes an ion-conducting composites for chemical and physical processes such as electrodialysis, electrolysis and chemical catalysis. The composite material contains ionic groups such as sulfonic acids, phosphoric acids, carboxylic acids to impart ion conductivity to the membrane (Claim 1).

Shi is directed to a battery separator which as described by Applicants (page 1, lines 13-14) “should electronically insulate the cathode from the anode, but be pervious to the electrolyte.”

Applicants respectfully submit that Hyung and Shi are directed to different technology and one of ordinary skill in the art would not be motivated to combine the teaching of the two references.

In the following excerpt from the Office’s own discussion of “**Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.***” the Office has stated:

“The rationale to support a conclusion that the claim would have been obvious is that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the time of the invention.⁴³ ”[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.”⁴⁴ **If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art,”** (Federal Register, Vol. 72, No. 195, page 57529) (**Bold added**)

The Examiner alleges that it would have been obvious to one of ordinary skill in the art to combine the cited references to arrive at the claimed invention. However, the Examiner has not explained how or why the description of the cited references would have led a person having ordinary skill in the art to the subject matter claimed.

In view of the above, Applicants respectfully submit that according to the KSR guidelines above, a conclusion of obviousness cannot be supported. Accordingly, Withdrawal of rejection of Claims 1-9, 12, 14-15 and 23-24 under 35 U.S.C. 103(a) over Shi in view of Hyung et al. (U.S. 6,620,320) is respectfully requested.

The provisional rejection of Claims 1, 3-5, 7 and 23-24 on the ground of nonstatutory obviousness-type double patenting over Claims 1-5, 7, and 23-24 of copending U.S.

Application No. 10/524,145 is respectfully traversed.

Applicants have described above that the copending Application recites a shutdown layer of **shutdown particles** and does not disclose or suggest a **shutdown layer comprising a sheet of materials**.

Accordingly, Applicants respectfully request withdrawal of the provisional rejection of Claims 1, 3-5, 7 and 23-24 on the ground of nonstatutory obviousness-type double patenting over Claims 1-5, 7, and 23-24 of copending U.S. Application No. 10/524,145.

The objection to Claim 4 is believed obviated by appropriate amendment. Claim 4 is herein amended to recite that the “carrier is a nonwoven comprising polymeric fibers.

Withdrawal of the objection is respectfully requested.

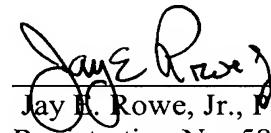
The objection to Claim 10 is moot in view of the cancellation of this claim. Claim 26 does not use the objected-to language.

The rejection of Claims 1-24 under 35 U.S.C. 112, second paragraph, is believed obviated by appropriate amendment. Claim 1 is herein canceled. Claim 25 does not include the term “predetermined.” Claim 3 is herein amended to remove the term “flexible.” Claim 23 is amended to describe a method comprising the positive step of “employing.” Withdrawal of the rejection of Claims 1-24 under 35 U.S.C. 112, second paragraph, is respectfully requested.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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